

# Curriculum vitae of Patrick De Leenheer

February 3, 2011

- **Personal details**

Born in Gent, Belgium on 3/16/1973.

Belgian citizen and permanent resident of the USA.

Married to Marijke Brutsaert, four children Ninke (age 11 years), Merel (age 9 years), Jenna (age 6 years), and Kate (age 4 years).

- **Current affiliation and coordinates**

Department of Mathematics, University of Florida, 359 Little Hall, PO Box 118105, Gainesville, FL 32611-8105. (<http://www.math.ufl.edu/~deleenhe>). Phone: 352-392-0281 (ext 240).

- **Education**

- Ghent University (Belgium), Electro-mechanical engineering, M.Sc., July 1995.
- Ghent University (Belgium), Applied Sciences, Ph.D., December 2000.

- **Academic experience**

- University of Florida, Department of Mathematics, Associate Professor, 2008-present.
- University of Florida, Department of Mathematics, Assistant Professor, 2004-2008.
- DIMACS/Rutgers University, Post-Doctoral Research Fellow, 2003-2004.
- Université Catholique de Louvain-la-Neuve, Belgium, Visiting Professor, June 2003.
- Arizona State University, Visiting Assistant Professor, 2001-2003.
- Eindhoven University of Technology, The Netherlands, Postdoctoral Researcher, 2001.
- Ghent University, Belgium, Research and Teaching Assistant and PhD Student in IAP (federally funded Interuniversity Attraction Poles programme), 1995-2000.

- **Publications**

1. Journal papers, book chapters

*Published, accepted:*

- S.M. Ciupe, P. De Leenheer, and T.B. Kepler, Paradoxical suppression of broadly neutralizing antibodies in the presence of strain specific antibodies during HIV infection, accepted for publication in Journal of Theoretical Biology.
- J. Langebrake, L. Riotte-Lambert, C.W. Osenberg, and P. De Leenheer, Differential movement and movement bias models for Marine Protected Areas, accepted for publication in Journal of Mathematical Biology.
- D. Angeli, P. De Leenheer and E.D. Sontag, Persistence results for chemical reaction networks with time-dependent kinetics and no global conservation laws, SIAM Journal of Applied Mathematics 71 (1), 128-146, 2011.
- P. De Leenheer, J. Dockery, T. Gedeon, and S.S. Pilyugin, The chemostat with lateral gene transfer, Journal of Biological Dynamics 4 (6), 607-620, 2010.
- D. Angeli, P. De Leenheer and E.D. Sontag, Graph-theoretic characterizations of monotonicity of biochemical networks in reaction coordinates, Journal of Mathematical Biology 61 (4), 581-616, 2010.

- P. De Leenheer, J. Dockery, T. Gedeon, and S.S. Pilyugin, Senescence and antibiotic resistance in an age-structured population model, *Journal of Mathematical Biology* 61 (4), 475-499, 2010.
- L. Wang, P. De Leenheer, and E.D. Sontag, Conditions for Global Stability of Monotone Tridiagonal Systems with Negative Feedback, *Systems and Control Letters* 59 (2), 130-138, 2010.
- P. De Leenheer and N.C. Cogan, Failure of antibiotic treatment in microbial populations, *Journal of Mathematical Biology* 59 (4), 563-579, 2009 (also arXiv:0807.1943).
- P. De Leenheer, Within-host virus models with periodic antiretroviral therapy, *Bulletin of Mathematical Biology* 71 (1), 189-210, 2009 (also arXiv:0801.4384v1).
- D. Angeli, P. De Leenheer and E.D. Sontag, Chemical networks with inflows and outflows: A positive linear differential inclusions approach, *Biotechnology Progress* 25 (3), 632-642, 2009.
- A. Ackleh and P. De Leenheer, Discrete three-stage population model: persistence and global stability results, *Journal of Biological Dynamics*, 2 (4), 415-427. 2008.
- P. De Leenheer and S.S. Pilyugin, Multi-strain virus dynamics with mutations: a global analysis, *Mathematical Medicine and Biology* 25 (4), pp 285-322, 2008 (also arXiv:0707.4501).
- P. De Leenheer and S.S. Pilyugin, Immune response to a malaria infection: Properties of a mathematical model (also arXiv:0707.4497), *Journal of Biological Dynamics*, 2 (2), pp 102-120, 2008.
- W.S. Keeran, P. De Leenheer and S.S. Pilyugin, Feedback-mediated coexistence and oscillations in the chemostat, *Discrete and Continuous Dynamical Systems-B*, 9 (2), pp 321-351, 2008.
- D. Angeli, P. De Leenheer and E.D. Sontag, A Petri net approach to the study of persistence in chemical reaction networks, *Mathematical Biosciences*, 210 (2), pp 598-618, 2007 (also arXiv:q-bio.MN/0608019 v2).
- D. Angeli, P. De Leenheer and E.D. Sontag, A Petri net approach to persistence analysis in chemical reaction networks, *Lecture Notes in Control and Information Sciences*, 357, pp 181-316, 2007.
- P. De Leenheer, D. Angeli and E.D. Sontag, Monotone chemical reaction networks, *Journal of Mathematical Chemistry*, 41 (3), 295-314, 2007
- W.S. Keeran, P. De Leenheer and S.S. Pilyugin, Circular and elliptic orbits in a feedback-mediated chemostat, *Discrete and Continuous Dynamical Systems-B*, 7, pp 779-792, 2007.
- F. Mazenc, M. Malisoff and P. De Leenheer, On the stability of periodic solutions in the perturbed chemostat, *Mathematical Biosciences and Engineering*, 4, pp 319-338, 2007.
- P. De Leenheer, and S.S. Pilyugin, Feedback-mediated oscillatory coexistence in the chemostat, *Lecture Notes in Control and Information Sciences*, 341, pp 97-104, 2006.
- P. De Leenheer, D. Angeli and E.D. Sontag, Crowding effects promote coexistence in the chemostat, *Journal of Mathematical Analysis and Applications* 319 (1), pp 48-60, 2006.
- P. De Leenheer, S.A. Levin, E.D. Sontag and C.A. Klausmeier, Global stability in a chemostat with multiple nutrients, *Journal of Mathematical Biology* 52 (4), pp 419-438, 2006.
- M. Malisoff and P. De Leenheer, A Small-Gain Theorem for Monotone Systems with Multi-Valued Input-State Characteristics, *IEEE Transactions on Automatic Control* 51 (2), pp 287-292, 2006.
- P. De Leenheer, D. Angeli and E.D. Sontag, On predator-prey systems and small-gain theorems, *Mathematical Biosciences and Engineering*, 2, pp 25-42, 2005.
- D. Angeli, P. De Leenheer and E.D. Sontag, A small-gain theorem for almost global convergence of monotone systems, *Systems and Control Letters*, 52 (5), pp 407-414, 2004.
- P. De Leenheer, B. Li, H.L. Smith, Competition in the chemostat: some remarks, *Canadian Applied Mathematics Quarterly*, 11 (3), pp 229-248, 2003.
- P. De Leenheer, D. Angeli D and E.D. Sontag, Small-gain theorems for predator-prey systems, *Lecture Notes in Control and Information Sciences*, 294, pp 191-198, 2003.
- P. De Leenheer, D. Angeli D and E.D. Sontag, A feedback perspective for chemostat models with crowding effects, *Lecture Notes in Control and Information Sciences*, 294, pp 167-174, 2003.
- P. De Leenheer and H.L. Smith, Virus dynamics: a global analysis, *SIAM Journal on Applied Mathematics*, 63 (4), pp 1313-1327, 2003.
- P. De Leenheer and H.L. Smith, Feedback control for chemostat models, *Journal of Mathematical Biology*, 46 (1), pp 48-70, 2003.

- P. De Leenheer and D. Aeyels, Stabilization of positive systems with first integrals, *Automatica*, 38 (9), pp 1583-1589, 2002.
  - D. Aeyels and P. De Leenheer, Extension of the Perron-Frobenius Theorem to homogeneous systems, *SIAM Journal on Control and Optimization*, 41 (2), pp 563-582, 2002.
  - P. De Leenheer and D. Aeyels, Stabilization of positive linear systems, *Systems and Control Letters*, 44 (4), pp 259-271, 2001.
  - P. De Leenheer and D. Aeyels, Stability properties of equilibria of classes of cooperative systems, *IEEE Transactions on Automatic Control*, 46 (12), pp 1996-2001, 2001.
2. Technical Report (not reviewed)
    - (a) P. De Leenheer, E. D. Sontag, A note on the monotonicity of matrix Riccati equations, DIMACS Technical Report 2004-36.
  3. PhD thesis, Stability, control and stabilization of positive systems, Ghent University, December 2000.
  4. Conference proceedings papers (with review process)
    - (a) D. Angeli, P. De Leenheer, and E.D. Sontag, On Persistence of Chemical Reaction Networks with Time-Dependent Kinetics and No Global Conservation Laws, cdrom proceedings of the 48th IEEE Conference on Decision and Control, Shanghai, China, December 2009. (Invited Paper)
    - (b) L. Wang, P. De Leenheer and E.D. Sontag, Global stability for monotone tridiagonal systems with negative feedback, cdrom proceedings of the 47th IEEE Conference on Decision and Control, Cancun, Mexico, December 2008.
    - (c) D. Angeli, P. De Leenheer, and E. Sontag, Petri net tools for the analysis of persistence in chemical networks, cdrom proceedings of NOLCOS 2007 (7th IFAC Symposium on NonLinear Control Systems, 22-24 August 2007, Pretoria, South Africa).
    - (d) F. Mazenc, P. De Leenheer, and M. Malisoff, Stabilizing a Periodic Solution in the Chemostat: A Case Study in Tracking, cdrom proceedings of the 45th IEEE Conference on Decision and Control, San Diego, December 2006.
    - (e) D. Angeli, P. De Leenheer, and E. D. Sontag, On the structural monotonicity of chemical reaction networks, cdrom proceedings of the 45th IEEE Conference on Decision and Control, San Diego, December 2006. (Invited paper)
    - (f) M. Malisoff, and P. De Leenheer, Remarks on Monotone Control Systems with Multi-Valued Input-State Characteristics, cdrom Proceedings of the Joint 44th IEEE Conference on Decision and Control and European Control Conference (CDC-ECC'05), Seville, Spain, December 2005.
    - (g) P. De Leenheer, and D. Angeli, Monotonicity and convergence in chemical reaction networks, cdrom Proceedings of the Joint 44th IEEE Conference on Decision and Control and European Control Conference (CDC-ECC'05), Seville, Spain, December 2005.
    - (h) D. Angeli, P. De Leenheer and E.D. Sontag, Monotonicity and convergence in chemical reaction networks, cdrom proceedings of 43rd IEEE Conference on Decision and Control, Bahamas, 2004.
    - (i) P. De Leenheer, D. Angeli and E.D. Sontag, A tutorial on monotone systems -with an application to chemical reaction networks, paper 435, cdrom proceedings of MTNS2004 (16th international symposium on mathematical theory of networks and systems), July 5 – 9, 2004, Leuven, Belgium. (Invited paper)
    - (j) P. De Leenheer and H.L. Smith, Global analysis of HIV models, Proceedings of the European Control Conference (ECC), Cambridge, UK, 2003. (Invited paper)
    - (k) P. De Leenheer and D. Aeyels, Extension of the Perron-Frobenius Theorem: From linear to homogeneous, cdrom proceedings of the 41st IEEE Conference on Decision and Control, Las Vegas, Nevada, 2002. (Invited paper)
    - (l) P. De Leenheer and H. Smith, Feedback control for a chemostat with two organisms, cdrom proceedings of the Symposium on Mathematical Theory of Networks and Systems (MTNS), University of Notre Dame 2002. (Invited paper)
    - (m) P. De Leenheer, H. Nijmeijer and B. de Jager, Stabilization with hybrid control laws, cdrom proceedings of the IFAC World Congress, Barcelona 2002.
    - (n) P. De Leenheer and D. Aeyels, Stabilization results for positive systems with first integrals, cdrom proceedings of the IFAC Nonlinear Control Systems Design Symposium (NOLCOS), Saint Petersburg, Russia, July 4-7, 2001.

- (o) P. De Leenheer and D. Aeyels, Accessibility properties of controlled Lotka-Volterra systems, Proceedings of the 39th IEEE Conference on Decision and Control, Sydney, Australia, 2000, pp. 3977-3981.
- (p) P. De Leenheer and D. Aeyels, Stability results for some classes of cooperative systems, Proceedings of the 39th IEEE Conference on Decision and Control, Sydney, Australia, 2000, pp. 2965-2970.
- (q) J. Peuteman, D. Aeyels and P. De Leenheer, Averaging results for homogeneous differential equations that are not fast time-varying, Proceedings of the 38th IEEE Conference on Decision and Control, Phoenix, Arizona, 1999, pp. 3358-3363.
- (r) P. De Leenheer and D. Aeyels, A note on uniform boundedness of a class of positive systems, Proceedings of the 38th IEEE Conference on Decision and Control, Phoenix, Arizona, 1999, pp. 2575-2579.
- (s) D. Aeyels and P. De Leenheer, Stability for homogeneous cooperative systems, Proceedings of the 38th IEEE Conference on Decision and Control, Phoenix, Arizona, 1999, pp. 5241-5242.
- (t) P. De Leenheer and D. Nesic, A note on stabilizing and time-optimal controllers for discrete-time linear systems with positive controls, Preprints, IFAC Nonlinear Control Systems Design Symposium (NOLCOS), Enschede, The Netherlands, July 1-3, 1998, pp. 685-690.

- **Grants**

- **Research grants**

1. Preliminary Studies Grant from the College of Liberal Arts and Sciences at UF, 2010-2011, \$ 15k. (PI)
2. NSF grant in Mathematical Biology, 'Models in mathematical biology: a feedback perspective II', DMS-0614651, 2006-2010, \$ 100k. (PI)
3. NSF grant in Applied Mathematics 'Models in mathematical biology: a feedback perspective', DMS-0500861, 2005-2006 (transfer from DMS-0342153, 2003-2006), \$ 64k. (PI)

- **Conference grants**

1. NSF grant for the University of Florida Conference on Computational and Systems Biology, 2011, \$20k. (co-PI, PI: Sergei S. Pilyugin, University of Florida, co-PI: Jed Keesling, University of Florida)
2. NSF grant for International Conference: Mathematical tools for multi-scale biological processes, DMS-0803127, 2008 \$ 16k. (co-PI, PI: Tomas Gedeon, Montana State University)

- **Awards**

Postdoctoral Research Fellowship at DIMACS and at Rutgers University, 2003-2004.

- **Editorial Boards**

Associate Editor of the Journal of Applied Mathematics, since 2006.

Associate Editor of Mathematical Biosciences and Engineering, since 2011.

- **Invited talks, colloquia, seminars (starting fall 2001)**

- May 3, 2010, Mathematical Biology at UF, Symposium of the Quantitative Spatial Ecology, Evolution, and Environment IGERT Program of the University of Florida Biology Department, Austin Carey Memorial Forest.
- April 16, 2010, Some mathematical tools for the analysis of complex biochemical networks, Cluster Seminar, University of Houston. (Invited)
- April 2, 2010, Convergence in biochemical reaction networks, Math Biology Seminar at the School of Mathematical and Statistical Sciences, Arizona State University. (Invited)
- March 18, 2010, Some properties of within-host virus models, Colloquium at the Department of Mathematics, University of Central Florida. (Invited)
- October 28, 2009, An introduction to synthetic biology, SIAM Gators Seminar, University of Florida. (Invited)

- September 14, 2009, Positive feedback in a stochastic model for gene regulation, Biomathematics Seminar, University of Florida.
- August 31, September 21 and 28, 2009, The zero deficiency theorem (part I,II and III), Biomathematics Seminar, University of Florida.
- July 7, 2009, Periodic Antiviral Therapies for Within-Host Virus Models, SIAM Conference on Control and Its Applications, Denver, CO. (Invited)
- April 4, 2009, Multi-strain within-host virus dynamics, AMS Meeting, NC State University, Raleigh, NC. (Invited)
- April 4, 2009, Graph-theoretic characterizations of monotonicity of chemical networks in reaction coordinates, AMS Meeting, NC State University, Raleigh, NC. (Invited)
- October 20, 2008, Persistence in biochemical reaction networks, Focus Group Meeting on Mathematical and Computational Models in Biological Networks, Mathematical Biosciences Institute (MBI), Columbus, OH. (Invited)
- August 4, 2008, Treatment for within-host virus dynamics, SIAM Conference on Life Sciences, Montreal, Canada. (Invited)
- June 4, 2008, Global analysis of a multi-strain virus model with mutations, Talk at the Mathematical Tools for Multi-Scale Biological Processes conference, Bozeman, MT.
- June 4, 2008, Treatment for within-host virus dynamics, Talk at the Mathematical Tools for Multi-Scale Biological Processes conference, Bozeman, MT.
- May 1, 2008, Within-host virus dynamics: modeling, analysis and treatment, Colloquium at the Department of Mathematics, University of Louisiana at Lafayette. (Invited)
- November 14, 2007, Global behavior of within-host virus models, Colloquium at the Department of Mathematical Sciences, Middle Tennessee State University. (Invited)
- November 5, 2007, The global dynamics of within-host virus models, Colloquium at the Department of Mathematics, University of Florida.
- October 29, 2007, The Perron-Frobenius Theorem and a few of its applications, Pi Mu Epsilon Talk, University of Florida.
- October 24, 2007, Discrete three-stage population model: persistence and global stability results, Seminar in Probability and Applied Mathematics, University of Florida.
- October 1, 2007, Persistence in biochemical reaction networks, International Conference on Systems Biology, Long Beach, CA. (Invited talk at tutorial on Mathematical Tools for the Analysis of Biochemical Network Dynamics).
- August 1, 2007, Multi-strain virus dynamics with mutations: A global analysis, Joint SMB-JSMB annual meetings, San Jose, CA.
- July 26, 2007, Multi-strain virus dynamics with mutations: A global analysis, Workshop on Control Theory and Mathematical Biology, Louisiana State University. (Invited)
- February 27, 2007, Mathematical tools for the analysis of biochemical reaction networks, Colloquium at Department of Mathematics, Purdue University, Mathematical tools for the analysis of biochemical reaction networks. (Invited)
- February 23, 2007, Mathematical tools for the analysis of biochemical reaction networks, Department of Applied Mathematics and Statistics, University of California at Santa Cruz. (Invited)
- February 20, 2007, Convergence in biochemical reaction networks, Seminar in Probability and Applied Mathematics, Department of Mathematics, University of Florida.
- February 9, 2007, Mathematical tools for the analysis of biochemical reaction networks, Mathematics Department, College of William and Mary. (Invited)
- November 10, 2006, Mathematical tools for the analysis of biochemical reaction networks, Colloquium at Department of Mathematics, University of Groningen, The Netherlands. (Invited)
- August 30, 2006, Feedback-mediated oscillatory coexistence in the chemostat, Second Multidisciplinary International Symposium on Positive Systems: Theory and Applications (POSTA 06), Grenoble, France. (Invited)

- August 2, 2006, Structural monotonicity of chemical reaction networks, Joint SIAM-SMB Conference on the Life Sciences, Raleigh, NC. (Invited)
- May 26, 2006, Coexistence, bistability and oscillations in the feedback-controlled chemostat, Maseeh Colloquium Series, Portland State University. (Invited)
- May 4, 2006, Coexistence, bistability and oscillations in the feedback-controlled chemostat, Mathematical Biosciences Institute, Ohio State University. (Invited)
- February 21, 2006, Bistability and Oscillations in the Feedback-Controlled Chemostat, Department of Mathematics and Department of Electrical Engineering, Louisiana State University. (Invited)
- December 8, 2005, Feedback control in the chemostat, Seminar in Probability and Applied Mathematics, Department of Mathematics, University of Florida.
- November 18, 2005, Feedback-mediated coexistence and oscillations in the chemostat, Department of Mathematics, University of North Florida. (Invited)
- August 1, 2005, Remarks on monotonicity in certain classes of chemical networks, Conference on Differential and Difference Equations and Applications, Melbourne, FL. (Invited)
- July 12, 2005, Remarks on monotonicity in certain classes of chemical networks, Sixth SIAM Conference on Control and its Applications, New Orleans, LA.
- May 26, 2005, Remarks on monotonicity in certain classes of chemical networks, Colloquium at Department of Mathematical Analysis, Ghent University, Belgium. (Invited)
- May 18, 2005, Remarks on monotonicity in certain classes of chemical networks, Seminar at FUNDP, Namur, Belgium. (Invited)
- May 17, 2005, Remarks on monotonicity in certain classes of chemical networks, Colloquium at Department of Mechanical Engineering, Eindhoven University of Technology, The Netherlands. (Invited)
- April 19, 2005, Remarks on monotonicity in certain classes of chemical networks, Seminar in Probability and Applied Mathematics, Department of Mathematics, University of Florida.
- October 26, 2004, An introduction to monotone systems, Applied Mathematics Seminar, Department of Mathematics, University of Florida.
- April 2, 2004, Growth on 2 nutrients in the chemostat: an application of monotone systems theory, PACM Dynamical Systems/Nonlinear Science Seminar, Princeton University. (Invited)
- February 23, 2004, Crowding effects promote coexistence in the chemostat, Department of Mathematics Colloquium, Queen’s University, Canada. (Invited)
- February 18, 2004, Crowding effects promote coexistence in the chemostat, Department of Mathematics Colloquium, University of Iowa. (Invited)
- January 30, 2004, Crowding effects promote coexistence in the chemostat, Department of Mathematics Colloquium, University of Florida. (Invited)
- October 28, 2003, 7th Workshop on Dynamics and Computation (Iterated games and cooperation), An application of competitive systems theory: global analysis of HIV models, University of Leuven, Belgium. (Invited)
- June 5, 2003, A feedback perspective for chemostat models with crowding effects, Department of Computer Science Seminar, University of Leuven, Belgium. (Invited)
- February 24, 2003, A feedback perspective for chemostat models with crowding effects, Department of Mathematics Colloquium, University of Louisville. (Invited)
- February 13, 2003, A feedback perspective for chemostat models with crowding effects, Department of Mathematics Colloquium, New Mexico State University. (Invited)
- November 1, 2002, Small gain theorems for predator-prey systems, Mathematical Biology Seminar, Arizona State University.
- June 17, 2002, HIV dynamics: a global analysis, Department of Mechanical Engineering Colloquium, Eindhoven University of Technology. (Invited)
- June 2002, HIV dynamics: a global analysis, Department of Electrical Energy Seminar, Ghent University. (Invited)

- May 2002, Extending the Perron-Frobenius theorem: from linear to homogeneous, Department of Mathematical and Statistical Sciences Colloquium, University of Alberta, Canada. (Invited)
- May 2002, Virus dynamics: a global analysis, Department of Mathematical and Statistical Sciences Seminar Series in Mathematical Biology, University of Alberta, Canada. (Invited)
- November 16, 2001, Coupled biological systems, Mathematical Biology Seminar, Arizona State University.
- October 5, 2001, Feedback control for a chemostat with two organisms, Mathematical Biology Seminar, Arizona State University.

### • Teaching

- At the University of Florida:
  1. Undergraduate courses: MAP 4403 Mathematical Methods for Engineers (fall 04), MAS 4105 Linear Algebra I (spring 05), MAP 2302 Elementary Differential Equations (fall 05, fall 06, fall 08, fall 09, fall 10), MTG 3214 Euclidean Geometry (fall 08).
  2. Graduate courses: MAP 6327 Applied Differential Equations I (fall 05), MAP 6487 Biomathematics Seminar I (fall 09), MAP 6488 Biomathematics Seminar II (spring 10), PCB 6049 IGERT Colloquium (spring 11).
  3. Undergraduate/Graduate courses: MAA 4102/5104 Advanced Calculus I (spring 05), MAP 4484/5489 Modeling in Mathematical Biology (spring 06, spring 09), MAP 4305/5304 Intermediate Differential Equations (fall 06, spring 07, fall 07, summer 10, fall 10), MAP 4341/5345 Introduction to Partial Differential Equations (spring 08).
- At Rutgers University: undergrad MAT 336 Differential Equations in Biology (fall 03).
- At Arizona State University, 01-03: undergrad MAT 210, 270, 271, 272 (calculus), and MAT 242 (linear algebra).
- At Ghent University, Belgium, 1995-2000: TA for Power systems I and II and Dynamics of electrical systems.

### • Students

- PhD Students: *In Mathematics*: Jessica Langebrake, Erica Zuhr and Cameron Browne. *In Biology*: Nick Rucktanonchai.
- Mentor to John Thompson Research Assistant Professor Necibe Tuncer.
- Member of PhD Committees: *In Mathematics*: Scott Keeran, Beyza Aslan, Minah Oh, Jillian Stupianski, Karly Jacobsen, Cuong Ngo. *In Physics*: Minjun Son. *In Engineering*: Valery Moreno Vega (Technical Sciences, Instituto Superior Politécnico “José Antonio Echeverría ” in Cuba).

### • Other activities

- Developed and taught the new course MAP 4484/5489 Modeling in Mathematical Biology (spring 06, University of Florida).
- Academic Manager of cooperative agreement between the College of Liberal Arts and Sciences of the University of Florida and Ghent University in Belgium, to promote exchange of faculty and students.
- Service to the College of Liberal Arts and Sciences of the University of Florida: Faculty Finance Committee 09 – 12, Member of the QSE<sup>3</sup> IGERT Council 09 – 10.
- Service to the Department of Mathematics of the University of Florida: Hiring Committee 08 – 09, Tenure and Promotion Committee 08 – 11, Chair Search Committee 07 – 08, Colloquium Committee 05 – 06 and 08 – 11 (Chair in 09 – 11), PhD Examination Committees (Numerical Analysis 05 – 07, PDE’s 04 – 11) Organizer of the Seminar in Probability and Applied Mathematics, 04 – 05 and January/February 2006, Group Proposals Committee 04 – 05, Liaison Committee 06 – 08, Visitors and Conferences Committee (Chair) 06 – 07, Post-doc Search Committee 07 – 08, Hiring Plan Committee 07 – 09, Differential Equations Textbook Selection Committee 07 – 08, Organizer of the Biomathematics Seminar 09 – 10.

- Co-organizer (with Murat Arcak and Yuan Wang) of the DIMACS Workshop on Perspectives and Future Directions in Systems and Control Theory, DIMACS Center, Rutgers University, Piscataway, NJ, May 23 – 27, 2011.
- Co-organizer (with Sergei S. Pilyugin and Jed Keesling) of the Computational Biology Conference, Gainesville, FL, March 17 – 19, 2011.
- Co-organizer (with Yuan Wang) of the session ”Mathematical Models in Biology” at the Fall South-eastern Sectional Meeting of the AMS, Boca Raton, FL, October 30-November 1, 2009.
- Co-organizer (with Eduardo Sontag) of the workshop ”Control Theory and Dynamics in Systems Biology”, DIMACS Center, Rutgers University, NJ, May 18-22, 2009.
- Co-organizer (with Tomas Gedeon and Xiaoqiang Zhao) of the conference ”Mathematical tools for multi-scale biological processes at the Montana State University”, Bozeman, MT, June 4-6, 2008.
- Co-organizer (with Michael Malisoff) of Minisymposium ”Monotone systems and their applications” at the Sixth SIAM Conference on Control and its Applications, New Orleans, LA, July 11-14, 2005.
- Lecturer in Graduate School in Systems and Control for the course ”Positive systems”, October 2004, Université Catholique de Louvain-la-Neuve, Belgium.
- Co-organizer (with Vincent Blondel and Rodolphe Sepulchre) of the 7th workshop on dynamics and computation (Theme: Iterated games and cooperation), October 27-28, 2003, Leuven, Belgium.
- Reviewer for several journals (about 20 papers per year), including: Journal of Mathematical Biology, Journal of Mathematical Medicine and Biology, Journal of Biological Dynamics, Mathematical Biosciences, Mathematical Biosciences and Engineering, Journal of Theoretical Biology, Journal of Biological Systems, SIAM Journal on Control and Optimization, SIAM Journal on Applied Mathematics, SIAM Journal on Matrix Analysis and Applications, Nonlinear Analysis: Real World Applications, Acta Applicandae Mathematicae, Mathematical Reviews, Journal of Difference Equations and Applications, IEEE Transactions on Automatic Control, Automatica, Systems and Control Letters, International Journal of Adaptive Control and Signal Processing, Journal of Applied Mathematics, European Journal of Control, Proceedings of the IEEE, Discrete and Continuous Dynamical Systems -B, International Journal of Robust and Nonlinear Control.
- Reviewer for several international conferences (IFAC, IEEE, MTNS).
- Book reviews: An Introduction to Mathematical Biology by Linda Allen, Prentice Hall, 2006; Mathematical Methods for Biology and Medicine by Glenn Ledder, Springer, 2009.
- External reviewer for INRIA, France, evaluating proposal to form the new research group Masaie (2008).
- Reviewer for NSERC.
- Reviewer and panelist for NSF.

- **Recent Collaborators**

- A. Ackleh, University of Louisiana at Lafayette, LA.
- D. Angeli, Imperial College, London, UK.
- S. M. Ciupe, University of Louisiana at Lafayette, LA.
- N. Cogan, Florida State University, FL.
- J.D. Dockery, Montana State University, MT.
- T. Gedeon, Montana State University, MT.
- W.S. Keeran, University of Florida, FL.
- M. Malisoff, Louisiana State University, LA.
- F. Mazenc, INRA, Montpellier, France.
- T.B. Kepler, Duke University, NC.
- C.W. Osenberg, University of Florida, FL.
- S.S. Pilyugin, University of Florida, FL.
- E.D. Sontag, Rutgers University, NJ.
- L. Wang, University of California-Irvine, CA.